furnace process, it is not possible to raise the combustion effort of the carbon so high that the same is able to hinder the removal of the agents ivhose reactions are exothermic. On the contrary, these reactions remain under all circumstances ensured of precedence over the endothermic carbon removal, except where deficiency of oxygen is present. So long as the entire reducing agents are able to obtain oxygen with ease, they do not disturb themselves in their general and mutual reactions. So soon, however, as oxygen commences to be deficient in amount, the power of the greater combustion effort of carbon manifests itself, and this now attacks the oxidation products of the remaining agents, and decomposes them to the extent that they are made accessible to it by the conditions of reaction.

Owing to the presence of larger quantities of oxygen, however, the elimination of the substances Si, Mn and P is quite extraordinarily favoured, and it is already expressed in the Krupp patent that the elimination of large amounts of these agents can be ended in the short space of time of six to eight minutes. Similar results wrere obtained in the ladle experiments before quoted, and likewise by the pouring of molten pig iron on ore placed in the open-hearth furnace, whether or no it was cold or melted, as to which the following experiment is furnished j

from "Stahl und Eisen,". 1905, p. 1344. Two ladlefuls of 10 tons of molten pig iron were teemed on to ore (22 per cent, on the weight of. metal) already in the furnace. The composition of the metal was

1st ladle. Test from ladle. Time 4'38.
Si 1-61, Mn 2-78, P 0'27, C 4'06 per cent. .st ladle. Test from furnace. Time 4'45.
Si 0;04, Mn 0*24, P 0'08, C 3*42 per cent. 2nd ladle. Test from ladle. Time 5*0.
Si 1-63, Mn 2-86, P 0*27, C 4'06 per cent. 2nd ladle. Test from furnace. Time 5'8.
Si 0-04, Mn 0'41, P 0'08, C 3'47 per cent.

Here also the elimination of Si, Mn and P was brought to an end in seven to eight minutes. But if one takes into consideration that one was only able